

780 CMR 9<sup>th</sup> edition Preview  
for  
Builders and Building Officials  
May 13 and 14, 2015

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# 780 CMR 9<sup>th</sup> edition Preview: Agenda

- Background and Timing
- Format
- Proposed Administrative Changes (Between 8<sup>th</sup> and 9<sup>th</sup> editions)
  - Chapter 1: Base and Residential Volumes
  - Manufactured Buildings
- Proposed Technical Changes (Between 8<sup>th</sup> and 9<sup>th</sup> editions)
  - Base Volume
    - Chapter 2 DEFINITIONS
    - Chapter 3 USE AND OCCUPANCY
    - Chapter 4 SPECIAL USE AND OCCUPANCY
    - Chapter 9 FIRE PROTECTION SYSTEMS
    - Chapter 34 EXISTING BUILDINGS
  - Residential Volume

# The 9<sup>th</sup> edition: Background

- Effort began in **June of 2014**.
- Based on the
  - *International Residential Code 2015* (IRC) and the
  - *International Building Code 2015* (IBC)
- BBRS directed Staff to create a ‘draft’ and bring in
  - stakeholders, and
  - Technical experts, and
  - building official
    - further input requested based on what is presented today

# 9<sup>th</sup> Edition: Timing

- Preliminary Timing

2015, June: BBRs approval vote expected

2015, TBD: Public Hearings

2016, TBD: Effective date...target is Jan 2016

- Policies going forward....

- Changes to 9<sup>th</sup> only issued once per year in January?

- YES

- 2018 I-codes not to be used?

- Not sure

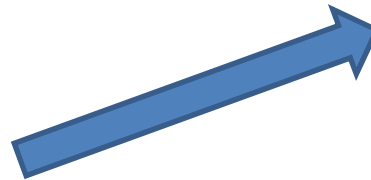
# 9<sup>th</sup> Edition: Format

- MA requirements
  - Imbed in
    - *International Residential Code*
  - Front end in
    - *International Building Code*
    - *International Energy Conservation Code*
    - *International Existing Building Code*
  - Format of MA requirements
    - Top to bottom list of MA amendments in one file
    - Table of contents with active links
    - M.G.L. and other references with active links
    - Amendment changes incorporated directly into the file and indicated with a sidebar.
    - Team of building officials (local and state) and stakeholders to provide input



# 9<sup>th</sup> Edition: Chapter 1 IBC/IRC

- Both Chapters
  - Reads top-to-bottom
  - Have identical Section Numbers, for example
    - IBC Section 110 is inspections and
    - IRC Section R110 is Inspections.
  - ‘Identical language’ where appropriate and particular language’ otherwise, for example:
    - IBC Section 110 has inspections different than
    - IRC Section R110 inspections.



# Proposed Administrative Changes

- Base Volume: Chapter 1
- Building official (including a local inspector) may issue a permit...
  - **105.3.1 Action on Application.** The *building official* shall examine or cause to be examined applications for *permits* and amendments, and shall issue or deny the *permit*, within 30 days of filing...etc.

# Proposed Administrative Changes

- Base Volume: Chapter 1
- Local inspector may not issue a C of O...
  - **111.2 Certificate Issued.** After the *building official* inspects the building or structure and finds no violations of the provisions of this code or other laws that are enforced by the department of building safety, the ~~*building official*~~ **building commissioner/inspector of buildings or state building inspector** shall issue a certificate of occupancy within ten days that contains the following...



# Proposed Administrative Changes

- Base Volume: Chapter 1
  - **105.2 Work\* Exempt from Permit** includes in the list these items...
    2. Fences not over 7 feet high.
    7. Painting, papering, tiling, carpeting, cabinets, counter tops and similar finish work.
    8. Temporary motion picture, television and theater stage sets and scenery.
    13. Nonfixed and movable fixtures, cases, racks, counters and partitions not over 5 feet 9 inches (1753 mm) in height.

\*List contains 14 items...up from 8

# Proposed Administrative Changes

- Residential Volume: Chapter 1
  - **105.2 Work\* Exempt from Permit** includes in the list this item...
    - 2. Fences not over **7 feet** high.
  - Water tanks and greenhouses bring the list from 9 to 11.

\*List contains **11 items**...up from **9**

# Proposed Administrative Changes

- Manufactured Buildings: Chapter 110 Reg 3 to include:
  - **RELOCATABLE BUILDING.** A partially or completely assembled building constructed and designed to be reused multiple times and transported to different building sites.
  - **DEALER.** Any individual, organization or firm engaged in the retail selling, or offering for sale, brokering, or distribution of product, primarily to a person who in good faith, purchases or leases such product for purposes other than resale.

# Proposed Technical Changes

- Base Volume: Chapter 2, 8<sup>th</sup> edition was...
  - **FIRE AREA.** The aggregate area of the building regardless of subdivisions by fire barriers and horizontal assemblies.

# Proposed Technical Changes

- Base Volume: Chapter 2, 9<sup>th</sup> edition uses the IBC definition:
  - **FIRE AREA.** The aggregate floor area enclosed and bounded by fire walls, fire barriers, exterior walls or horizontal assemblies of a building. Areas of the building not provided with surrounding walls shall be included in the fire area if such areas are included within the horizontal projection of the roof or floor next above.

# Proposed Technical Changes

- Base Volume: Chapter 2
  - **LODGING HOUSE.** A one-family dwelling **with five or fewer guest rooms** where one or more occupants are primarily permanent in nature and ~~rent is paid~~ **compensation is provided** for the guest rooms. **A building licensed as a “lodging house” per M.G.L. c. 140, § 22 to 31 shall comply with 780 CMR requirements according to its appropriate use and occupancy classification.**

**310.5.2 Lodging houses.** Owner-occupied lodging houses with five or fewer guest rooms shall be permitted to be constructed in accordance with the International Residential Code.

# Proposed Technical Changes

- Base Volume: Chapter 2
  - **NIGHT CLUB.** An **assembly** occupancy **with a high occupant load density** that is generally characterized by a ~~combination of any of~~ **at least two** of the following: ~~no theatrical stage accessories other than raised platform;~~ low lighting levels; ~~entertainment by a live band or recorded music generating above-normal sound levels;~~ ~~later than average~~ **nighttime** operating hours; tables and seating ~~arranged or positioned so as to~~ **that** create ill defined aisles; a specific area designated for dancing; ~~and~~ **or** service facilities for ~~alcoholic~~ beverages with limited food service. ~~and high occupant load density.~~ **For night club construction requirements see Section 430.**



# Proposed Technical Changes

- Base Volume: Chapter 4

- NIGHT CLUB ‘Special Use’ requirements:

Key  
difference

## 430 NIGHTCLUBS

**430.1 General.** All buildings containing a *nightclub* with an occupant load  $\geq 50$  shall comply with the provisions of this section and other applicable provisions of this code.

**430.2 Sprinkler Protection.** An approved automatic sprinkler system shall be provided throughout buildings containing a *nightclub* in accordance with Section 903.3.1.1.

**430.3 Foam plastics and interior finishes.** Foam plastics shall not be used in *nightclubs* as *interior finish* except as provided in Section 803.4 and shall not be used as interior *trim* except as provided in Section 806.5 or 2604.2. This section shall apply both to exposed foam plastics and to foam plastics used in conjunction with a textile or vinyl facing or cover.

**430.4 Entertainment system response.** The activation of any *fire protection system* element (signaling system, detection, sprinklering, etc.) shall automatically cause immediate:

1. illumination of all areas and components of the required *means of egress*, and additionally;
2. full activation of all other house lighting; and
3. stopping of any and all sounds and visual distractions (public address systems, entertainment and dance lighting, music, etc.) that conflict/compete with the fire protective signaling system.

## 430.5 Main exit.

The main entrance egress system shall be sized such that the width of all required *means of egress* elements is a minimum of 72 inches (nominal) or as determined by Section 1029.2, whichever is greater. The main entrance/exit door system shall consist of a pair of side-hinged swinging type doors without a center mullion and shall be equipped with panic hardware.

**430.5.1 Alternative Egress.** The *building official* may allow an alternative means of compliance where conditions exist which would preclude the installation of a 72-inch egress system. This approval is contingent upon the submission of an egress analysis from a *registered design professional* which determines that there is adequate *means of egress*. The egress shall be sufficient to accommodate the building's maximum occupant load. As a condition of an alternative egress approach, low level exit pathway marking shall be provided in accordance with Sections 1024.2 through 1024.5.

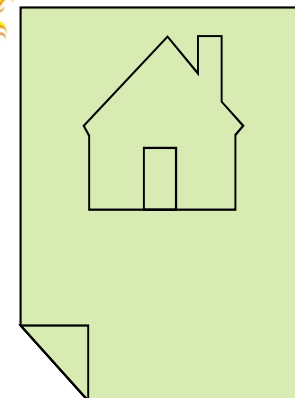


# Proposed Technical Changes

- Base Volume: Chapter 9
  - Building official works '*in consultation with*' vs. '*in conjunction and cooperation*' with the fire official.
  - TABLE 903.2 AUTOMATIC SPRINKLER REQ'MTS and footnotes for mix use, 12,000 sq ft trigger, etc. is...
    - replaced with IBC language
  - Carbon Monoxide Detection is now in R and E-Use.

# Proposed Technical Changes

- Base Volume: Chapter 13
  - *International Energy Conservation Code 2015* adopted with MA amendments similar to 8<sup>th</sup> ed.
  - DOER\* has proposed requirements for:
    - Electric Vehicle Charging Stations
    - Solar Ready Buildings
    - And the new...



\* MA Department of Energy Resources

# Proposed Technical Changes

- Base Volume: Chapter 13
  - Stretch Code: what's changed
    - Shrunk from 20+ pages to *less than a half a page*
    - Applies to New Construction *Only*

## MA 9<sup>th</sup> edition 780 CMR: Draft Stretch code provisions

### APPENDIX AA: STRETCH ENERGY CODE

~~The Stretch Energy Code is the International Energy Conservation Code (IECC) 2009 with Massachusetts Amendments (780 CMR 115.AA).~~

~~101.1, 101.2, and 101.3~~ Replace as follows:

~~101.1 Title.~~ This code shall be known as the Massachusetts Stretch Energy Code and shall be cited as such. It is referred to as "this code."

~~---~~


**101.1 Scope.** In municipalities which have adopted 780 CMR 115 Appendix AA (the Stretch Energy Code) it shall apply to new buildings only. It shall not apply to alterations, renovations, additions, or repairs of existing buildings.

**101.2 Stretch code requirements.** The energy conservation requirements of the Stretch Energy Code are as set forth in this section and in 780 CMR 13 or 51 as applicable based on the use and occupancy of the building.

**101.2.1 R-Use Buildings with dwelling units.** In all R-Use buildings, of four stories or less above *grade plane* each *dwelling unit* shall comply with Section N1106 of 780 CMR 51.

**101.2.2 Large area and high energy use buildings.** All buildings over 100,000 sq ft, and new supermarkets, laboratories and conditioned warehouses over 40,000 sq. ft. shall demonstrate energy use per square foot at least 10% below the energy requirements of ANSI/ASHRAE/IESNA 90.1 APPENDIX G Performance Rating Method on either a site or source energy basis.

# Proposed Technical Changes

- Base Volume: Chapter 34
- IEBC 2015 has a new Chapter 3....
  - It applies to all three compliance options
    - Prescriptive, Work Area, and Performance
  - New Sections
    - **302.6 Masonry Parapets**
    - **302.7 Structural requirements pertaining to roofing work**
    - **302.8 Structural requirements pertaining to major alterations.**
    - **302.9 Provisions for change in occupancy classification to R-Use**
    - **302.10 Fire detection systems in R-2 Uses** 

# Proposed Technical Changes

- Base Volume: Chapter 34

**302.10 Fire detection systems in R-2 Uses permitted under 780 CMR 5<sup>th</sup> edition or earlier.** When this code requires a smoke detection system in an R-2 Use and does not additionally require an NFPA 13, 13R, or 13D system installed throughout the building then this section shall apply. ~~Alterations to an existing fire detection system shall be made in such a manner that the altered system is no less conforming than the existing system.~~

**302.10.1.1 Heat detection.** If a building fire alarm system is provided, a heat detector shall be provided inside each dwelling unit within 6 feet of the entrance door. The heat detectors shall be connected to the building fire alarm system and cause a general alarm throughout the building upon activation. This shall also apply to the R-2 Use of a mixed use building.

**302.10.1.2 Common area detection.** If a building fire alarm system is provided, smoke detectors shall be provided in the common areas of the building. The common area detectors shall be connected to the building fire alarm system and cause a general alarm throughout the building upon activation. This shall also apply to the R-2 Use of a mixed use building.

**302.10.1.3 Dwelling unit detection.** Interconnected dwelling unit smoke detection shall sound within that dwelling unit only.

**Exception:**

For buildings of three stories or less used exclusively as R-2 Use with 6 or fewer dwelling units ~~of 3 stories or less~~ and with at least two means of egress serving each dwelling unit, the fire detection system may comply with the all of the following requirements:

- Interconnected dwelling unit smoke detection shall sound within that dwelling unit only.
- Area smoke detection shall be provided throughout common uses spaces including shared means of egress.
- A heat detector shall be provided inside each dwelling unit within 6 feet ~~dwelling unit~~ of doors serving ~~a means of egress~~ common areas.

Upon activation of either the common area smoke detection or the heat detection, a general alarm shall be ~~caused~~ sounded throughout the building.

# Proposed Technical Changes



- Base Volume: Chapter 34
- 8<sup>th</sup> edition
  - For less than ‘substantial structural damage’
  - Repairs shall be allowed that restore the building to its predamage state
- 9<sup>th</sup> edition (proposed Section 404.4.1)

which includes:

- 2015 IBC Snow Loads and
- MA Requirements on Snow Drifting and
- which in essence means...

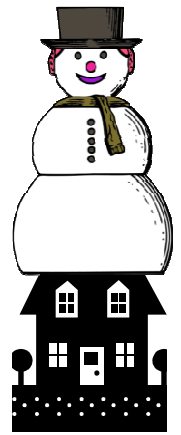
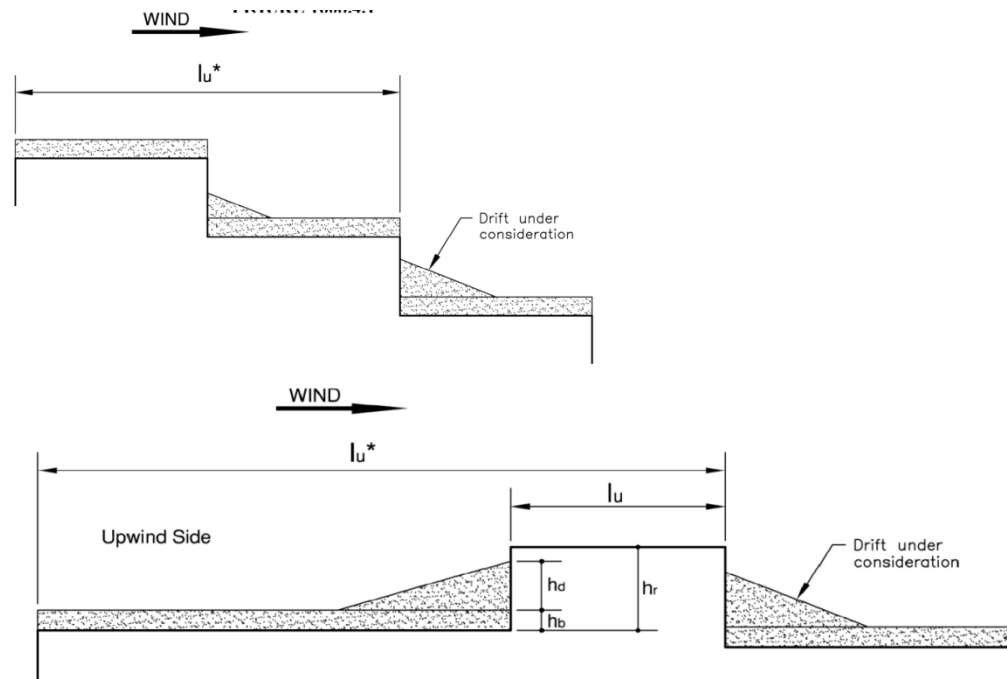
*...buildings with less than ‘substantial structural damage’ caused by snow are more likely to be ‘improved’ vs. simply ‘repaired’*

**[BS] 404.4 Less than substantial structural damage.** For damage less than substantial structural damage, repairs shall be allowed that restore the building to its predamage state. New structural members and connections used for this repair shall comply with the detailing provisions of the International Building Code for new buildings of similar structure, purpose and location.

**404.4.1 Repairs for less than substantial damage due to snow load effects.** Roof framing components that have sustained less than substantial structural damage caused by or related to snow load effects shall be rehabilitated to comply with the applicable provisions for dead and snow loads in 780 CMR 16. Undamaged roof framing components that receive dead or snow loads from rehabilitated components shall also be rehabilitated to comply with the design loads of the rehabilitated design.

# Proposed Technical Changes

- Base Volume: Chapter 34
- “shall be rehabilitated to comply with the applicable provisions for dead and snow loads in 780 CMR 16” which includes accounting for drifting:



# Proposed Technical Changes

- Base Volume: Chapter 34...Performance Method
- **[BS] 1401.4.1 Structural analysis.** The *owner* shall have a structural analysis of the existing building made to determine adequacy of structural systems for the proposed *alteration, addition or change of occupancy*. The analysis shall demonstrate that the building with the work completed is capable of resisting the loads specified in Chapter 16 of the *International Building Code*.

**Exception:** Residential buildings three stories or less above grade plane and comprised of light frame construction and of 6 units or less shall not need to demonstrate compliance to the loads specified in Chapter 16 of the *International Building Code*. Any structural alterations made to the building shall comply with the code for new construction as practicable or Chapter 4.  
(Structural Advisory Committee recommendation)



# Proposed Technical Changes

- Residential Volume
  - Lodging House: 5 guest rooms or less and owner occupied **use IRC**
  - But if over 14,400 sq. ft. then what happens?



# Proposed Technical Changes

- Residential Volume

- Townhouses: 3 stories or less use IRC

- No longer need to comply with seismic provisions and
    - if 2 hour dividing walls are used then sprinklers are not required per item 1. of **R302.2 Townhouses:**

- Where a fire sprinkler system .....is not provided, the common wall shall be not less than a 2-hour fire-resistance-rated wall assembly tested in accordance with ASTM E119 or UL 263.



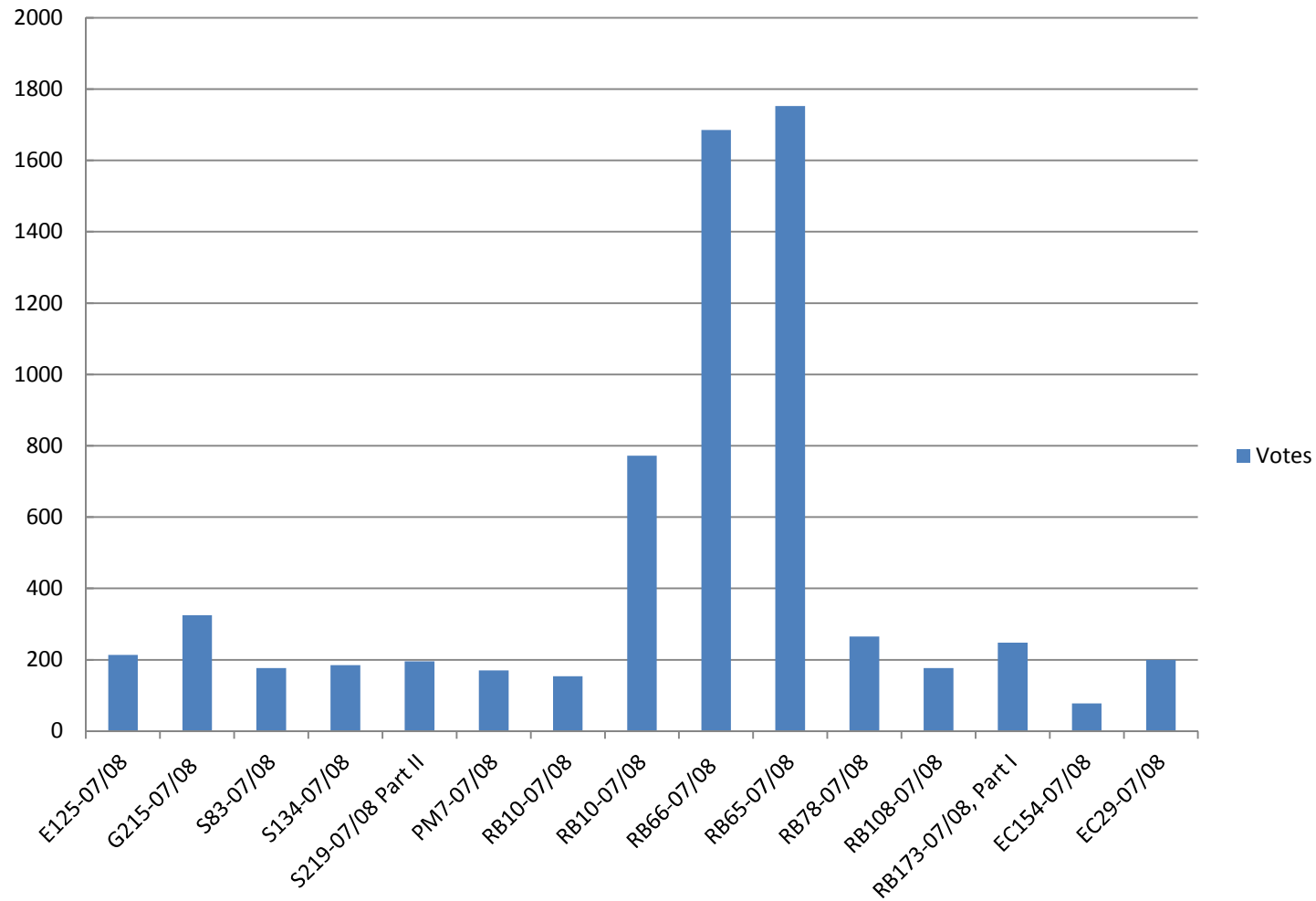
# I-Codes Then to Now: Townhouses<sup>2</sup>

Townhouse Requirements	IRC edition (Required? Y or N/Code Section Number)					
	2000	2003	2006	2009	2012	2015
<b>Emergency Escape and Rescue Openings</b>	Y/R310	Y/R310	Y/R310	Y/R310	Y/R310	Y/R310
<b>Fire Rated Separation</b>						
<b>Means of Egress</b>	Y/ under stair separation 314.8/ ½ in. gypsum	Y/ under stair separation 311.2.2/ ½ in. gypsum	Y/ under stair separation 311.2.2/ ½ in. gypsum	Y/ under stair separation 302.7/ ½ in. gypsum	Y/ under stair separation 302.7/ ½ in. gypsum	Y/ under stair separation 302.7/ ½ in. gypsum
<b>Between Dwelling Units</b>	Y/R321.2/ 1 hour <sup>1</sup> or 2 hour shared wall	Y/R317.2/ 1 hour <sup>1</sup> or 2 hour shared wall	Y/R317.2/ 1 hour <sup>1</sup> or 2 hour shared wall	Y/302.2/ 1 hour	Y/302.2/ 1 hour	Y/302.2/ 1 hour or
						2 hour shared wall
<b>Number of Exits<sup>3</sup></b>	Y/311.1/ 1 exit	Y/311.4.1/ 1 exit	Y/311.4.1/ 1 exit	Y/311.2/ 1 exit	Y/311.2/ 1 exit	Y/311.2/1 exit
<b>Sprinklers</b>	N	N	N	Y/313.1	Y/313.1	Y/313.1
						N/302.2 if 2 hr wall
<b>Smoke alarms</b>	Y/R317	Y/R313	Y/R313	Y/R314	Y/R314	Y/R314
<b>Carbon Monoxide</b>	N	N	N	Y/R315	Y/R315	Y/R315

1. Per section 302 for exterior wall – fire resistance with exposure from both sides.
2. Green to yellow indicates increase in code ‘stringency’
3. MA requires 2 exits

# ICC Vote Tally for IRC 2009

## Votes at ICC Hearings for the 2009 Edition



# Proposed Technical Changes

- Residential Volume
  - Wind speeds are the same but not really...

## CHAPTER 16

TABLE 1604.11 SNOW LOADS, WIND SPEEDS, AND SEISMIC PARAMETERS

City/Town	SNOW LOADS		BASIC WIND SPEED, $V_{ult}$ (mph)			SEISMIC PARAMETERS (g)	
	Ground Snow Load, $P_g$ (psf)	Minimum Flat Roof Snow Load, $P_f^1$ (psf)	Risk Category I	Risk Category II	Risk Category III or IV	$S_s$	$S_1$
Abington	35	30	122	132	143	0.196	0.065
Acton	50	35	114	124	134	0.213	0.070
Acushnet	30	30	129	138	149	0.172	0.059
Adams <sup>2</sup>	60	40	105	115	120	0.172	0.069
Agawam	35	35	109	120	128	0.174	0.065
Alford <sup>2</sup>	40	40	105	115	120	0.169	0.066
Amesbury	50	30	113	123	134	0.267	0.078
Amherst	40	35	106	118	125	0.172	0.066
Andover	50	30	114	124	135	0.247	0.075
Aquinnah (Gay Head)	25	25	133	140	154	0.141	0.052
Arlington	40	30	117	127	138	0.219	0.070
Ashburnham	60	25	108	118	128	0.200	0.071

# 9<sup>th</sup> Edition: IRC

- Wind Borne Debris: **Reserve** the definition which in essence makes the requirement null.
  - Wind ‘pressure’ in South East MA has dropped slightly
  - Impact windows twice the cost of non impact and take 20 minutes on average longer to install.
  - No evidence of structural damage directly attributable to wind in pre 1975 one- and two-family dwellings.
- Use of Maps and GPS for 1 mile determination no longer required



# Quiz

1. Plans by an architect for an townhouse show 2 hr dividing walls which she indicates comply with R302.1 Item 1. How can you check her work.
2. Per the 8<sup>th</sup> edition how many NIGHTCLUB characteristics are required for an A-2 use to be a NIGHTCLUB?
3. Per the 9<sup>th</sup> edition what single NIGHTCLUB characteristic distinguishes an A-2 NIGHTCLUB from other A-2 Uses?
4. Per the 9<sup>th</sup> edition how many NIGHTCLUB characteristics are required for an A-2 use to be a NIGHTCLUB?
5. Per the 9<sup>th</sup> edition what NIGHTCLUB technical requirement is allowed some design 'flexibility'.
6. Per the 9<sup>th</sup> edition what type of windows are required for a single family home on the coast in Barnstable?

# On behalf of the DPS/BBRS:

*...always want your input!*

*and*

*always appreciate your input!*

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